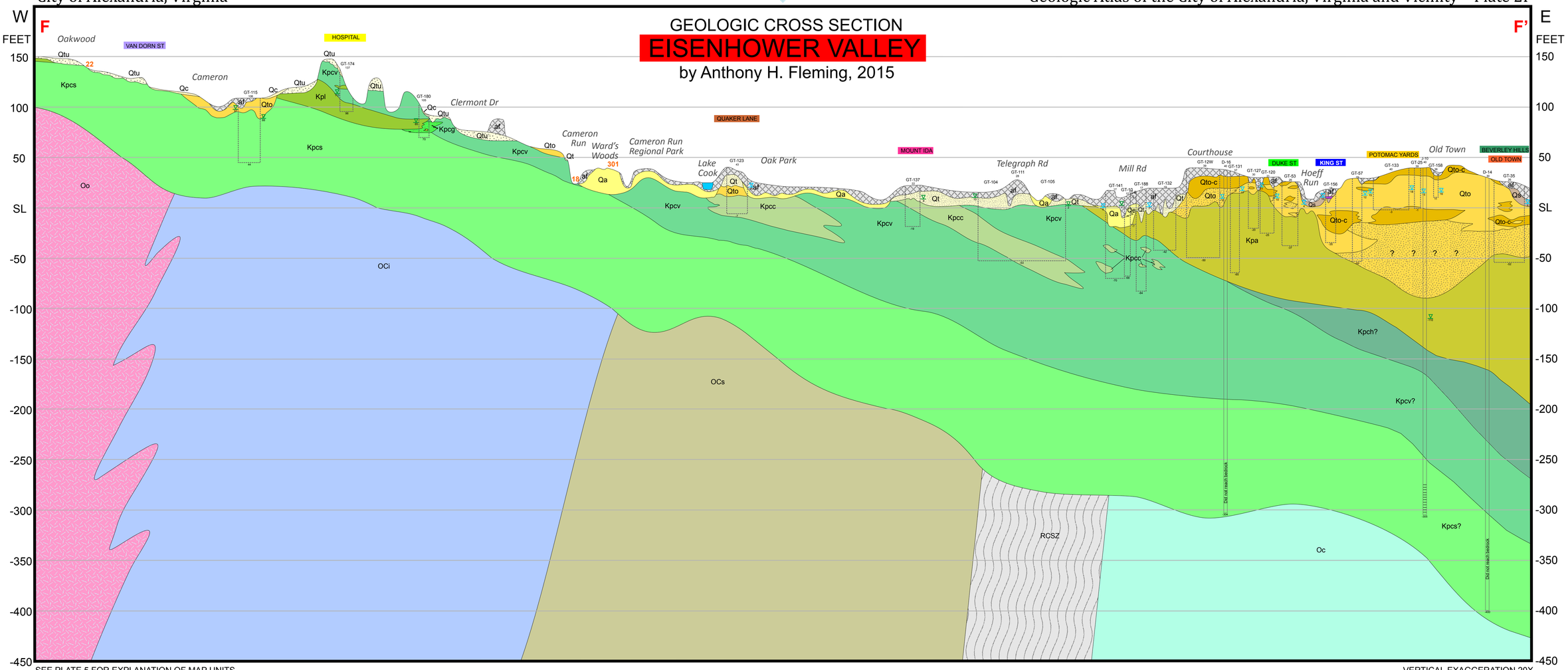
GEOLOGIC CROSS SECTION
EISENHOWER VALLEY
by Anthony H. Fleming, 2015



GEOLOGIC CROSS SECTION 2F – EISENHOWER VALLEY

Cross section 2F follows Eisenhower Avenue down Cameron Run Valley – the "Eisenhower Valley" – from Oakwood to Old Town. The section exemplifies the many alluvial terraces flanking the valley, ranging from small erosional remnants of unknown age plastered on hilltops, to broad low-lying plains of Quaternary age that extend for miles and comprise the bulk of the bottomland. It also is a "keystone" section in the series, intersecting the southern ends of nine other cross sections and encompassing many major geotechnical boring sites, several historical water wells, and a variety of sites of cultural, historical, and environmental interest. All of these features are indicated by labels and symbols on the cross section. The specific location of the cross section is indicated on Plate 1 by a red section line.

The cross sections are intended to be used together with the geologic maps, particularly Plate 5, to illustrate the third dimension of the map units. Contacts between map units are approximately located and, in the Potomac Formation, may be gradational or transitional. The abundance of control points (surface exposures, wells, geotechnical sites) along the cross section provides a general indication of the reliability of contact locations. Map units are depicted using the same colors, patterns, and labels as on Plate 5, and the explanation of map units on Plate 5 serves as the legend. The section also depicts some bedrock units, gravelly zones in the Old Town terrace, and organic horizons that are present only in the subsurface and do not appear on Plate 5.

The dominant physiographic features are the many alluvial terraces that flank Cameron Run, which often descend into the valley like a series of steps. In the early days, the rich alluvial soils of Cameron Valley served as the City's breadbasket; today, however, most of this landscape has been so severely altered by urbanization that it would be unrecognizable to the City's early inhabitants. Vast amounts of artificial fill – documented to be tens of feet thick in some borings – blanket the landscape, while Cameron Run flows in a deep, artificial flume that bears little relation to its original course and has no connection to its floodplain or the series of terraces that ultimately define its geologic history.

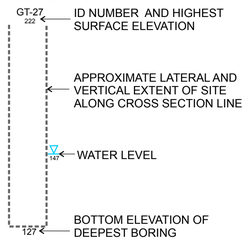
The cross section lies within the rim of the Cameron bedrock valley (plate 3), whose thalweg mostly lies just south of the map area in Fairfax County. The bedrock valley and its tributaries are filled with thick, sandy channel deposits (Kpcs, Kpcv) deposited by early Cretaceous rivers at the onset of Potomac Formation sedimentation.

The Cameron Valley is a regional ground-water discharge area, with the stream receiving a large volume of ground water discharge from a variety of aquifers--terraces, alluvium, and Potomac Formation sands. The large channel at the base of the Old Town terrace beneath Old Town is inferred to be at least partially filled with gravel, based on limited data from a few deep borings elsewhere on the terrace. This feature potentially represents a highly productive ground-water resource, with yields expected to be comparable to the sandy units at the base of the Potomac Formation.

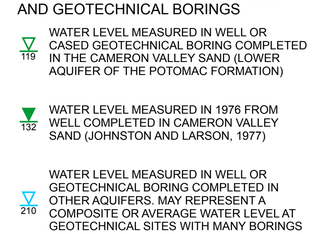
EXPLANATION OF CROSS SECTION SYMBOLS:

WATER WELL

GEOTECHNICAL BORING SITES



WATER LEVELS REPORTED IN WELLS AND GEOTECHNICAL BORINGS



OTHER SYMBOLS